CLAIMS

1. Soldering material comprising an alloy that in addition to Sn (tin) as the major constituent, comprises 10 wt.% or less Ag (silver), 10 wt.% or less Bi (bismuth), 10 wt.% or less Sb (antimony) and 3 wt.% or less Cu (copper), wherein the alloy further comprises 1.0 wt.% or less Ni (nickel).

2. Soldering material comprising a plurality of soldering components with such alloy compositions and contents in the soldering material that on fusing the soldering components an alloy is formed that, in addition to Sn (tin) as the major constituent, comprises 10 wt.% or less Ag (silver), 10 wt.% or less Bi (bismuth), 10 wt.% or less Sb (antimony) and 3 wt.% or less Cu (copper), wherein at least one of the soldering components further comprises Ni (nickel) in such an amount that the alloy comprises 1.0 wt.% or less Ni.

3. Soldering material according to Claim 1 or 2 wherein the alloy comprises 2 to 5 wt.% Ag, 1 to 3 wt.% Bi, 1 to 3 wt.% Sb, 0.5 to 1.5 wt.% Cu and 0.05 to 0.3 wt.% Ni.

4. Soldering material according to Claim 2 wherein a soldering component M1 and a further soldering component M2 are provided in which the soldering component M1, in addition to Sn as the major constituent, comprises 2 to 5 wt.% Ag, 3 to 12 wt.% Bi, 0.5 to 1.5 wt.% Cu and 0.1 to 0.3 wt.% Ni and the further soldering component M2, in addition to Sn as the major constituent, comprises 2 to 5 wt.% Ag, 0.5 to 1.5 wt.% Cu, 1 to 5 wt.% Sb and 1.0 wt.% Ni.

5. Soldering material according to Claim 2 wherein a soldering component M1 and a further soldering component M2 are provided in which the soldering component M1, in addition to Sn as the major constituent, comprises 2 to 5 wt.% Ag, 3 to 6 wt.% Bi, 1 to 3 wt.% Sb and 0.5 to 1.5 wt.% Cu and the further soldering component M2, in addition to Sn as the major constituent, comprises 2 to 5 wt.% Ag, 0.5 to 1.5 wt.% Cu and 1.0 wt.% Ni.

6. Soldering material according to Claim 4 or 5 wherein the soldering component M1 and the further soldering component M2 are combined in the ratio M1:M2 = 1:1.5 to 9, based on the weight of M1 and M2.

7. Soldering material according to any one of the preceding claims wherein in the alloy there exists a ratio Sb:Bi of 1:1.5 to 3, particularly a ratio of 1:2, based on the weight of Sb and Bi.

8. Soldering material according to Claim 7 wherein the alloy exhibits a Ni-content of 0.05 to 0.2 wt.%.

9. Soldering material according to Claim 1 wherein the composition is SnAg3.3-4.7Cu0.3-1.7Bi2Sb1Ni0.2.

10. Soldering material according to Claim 2 wherein a soldering component M1 with the alloy composition SnAg3.8Cu0.7Bi10Ni0.15 and a further soldering component M2 with the alloy composition SnAg3.8Cu0.7Sb2.0Ni0.15 are provided.

11. Soldering material according to Claim 10 wherein the contents of the soldering component M1 and the further soldering component M2 in the soldering material form the ratio M1:M2 = 30 wt.% : 70 wt.%.